



UBCV0004.ST25.txt
SEQUENCE LISTING

<110> Finlay, Brett B.
Kenny, Brandant
Devinney, Rebekah
Stein, Marcus

<120> HOST RECEPTOR FOR PATHOGENIC BACTERIA

<130> UBCV-0004

<140> US 09/189,415

<141> 1998-11-10

<150> US 60/065,130

<151> 1997-11-12

<160> 14

<170> PatentIn version 3.3

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<213> Escherichia coli

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20 25 30
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35 40 45
Leu Phe Ser Pro Leu Arg Asn Ser Met Ala Asp Ser Val Asp Ser Arg
50 55 60
Asp Ile Pro Gly Leu Pro Thr Asn Pro Ser Arg Leu Ala Ala Ala Thr
65 70 75 80
Ser Glu Thr Cys Leu Leu Gly Gly Phe Glu Val Leu His Asp Lys Gly
85 90 95
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Glu Val Gln Ala Asp Gly Thr His Ala Ala Ile Gly Glu Lys Asn Gly
115 120 125

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 Ser Ile Asp Thr Glu Gly Lys Asn Arg Phe Val Phe Thr Gly Gly Arg
 145 150 155 160
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 165 170 175
 Ala Arg Thr Arg Ile Leu Ala Lys Leu Asp Pro Asp Asn His Gly Gly
 180 185 190
 Arg Gln Pro Lys Asp Val Asp Thr Arg Ser Val Gly Val Gly Ser Ala
 195 200 205
 Ser Gly Ile Asp Asp Gly Val Val Ser Glu Thr His Thr Ser Thr Thr
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 Asn Ser Ser Val Arg Ser Asp Pro Lys Phe Trp Val Ser Val Gly Ala
 225 230 235 240
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 245 250 255
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 Gln Ala Ala Asn Ala Ala Glu Ser Ala Thr Lys Asp Gln Leu Thr Gln
 275 280 285
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 305 310 315 320
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 325 330 335
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 340 345 350
 Arg Arg Gln Glu Glu Leu Gln Leu Ser Ser Gly Ile Gly Tyr Gly Leu
 355 360 365
 Ser Ser Ala Leu Ile Val Ala Gly Gly Ile Gly Ala Gly Val Thr Thr
 370 375 380
 Ala Leu His Arg Arg Asn Gln Pro Ala Glu Gln Thr Thr Thr Thr Thr
 385 390 395 400

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Thr His Thr Val Val Gln Gln Gln Thr Gly Gly Ile Pro Gln His Lys
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Val Ala Leu Met Pro Gln Glu Arg Arg Arg Phe Ser Asp Arg Arg Asp
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Ser Gln Gly Ser Val Ala Ser Thr His Trp Ser Asp Ser Ser Ser Glu
435 440 445

Val Val Asn Pro Tyr Ala Glu Val Gly Gly Ala Arg Asn Ser Leu Ser
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Ala His Gln Pro Glu Glu His Ile Tyr Asp Glu Val Ala Ala Asp Pro
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Gly Tyr Ser Val Ile Gln Asn Phe Ser Gly Ser Gly Pro Val Thr Gly
485 490 495

Arg Leu Ile Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu
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Pro Val Arg Phe Val
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 <213> Escherichia coli

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		20					25					30			

Gly	Gln	Leu	Ile	Asn	Ser	Thr	Gly	Pro	Leu	Gly	Ser	Arg	Ala	Leu	Phe
	35					40					45				

Thr	Pro	Val	Arg	Asn	Ser	Met	Ala	Asp	Ser	Gly	Asp	Asn	Arg	Ala	Ser
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Asp	Val	Pro	Gly	Leu	Pro	Val	Asn	Pro	Met	Arg	Leu	Ala	Ala	Ser	Glu
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 130 135 140
 Asp Pro Glu Gly Lys Asp Lys Phe Val Phe Thr Gly Gly Arg Gly Gly
 145 150 155 160
 Ala Gly His Ala Met Val Thr Val Ala Ser Asp Ile Thr Glu Ala Arg
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 Gln Arg Ile Leu Glu Leu Leu Glu Pro Lys Gly Thr Gly Glu Ser Lys
 180 185 190
 Gly Ala Gly Glu Ser Lys Gly Val Gly Glu Leu Arg Glu Ser Asn Ser
 195 200 205
 Gly Ala Glu Asn Thr Thr Glu Thr Gln Thr Ser Thr Ser Thr Ser Ser
 210 215 220
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 260 265 270
 Ser Ala Thr Glu Thr Ala Thr Arg Asp Gln Leu Thr Lys Glu Ala Phe
 275 280 285
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 290 295 300
 Ile Pro Ser Gly Val Leu Lys Asp Asp Val Val Ala Asn Ile Glu Glu
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Leu Ile Leu Gly Gly Gly Ile Gly Val Ala Val Thr Ala Ala Leu His
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Thr Thr Thr Ser Ala Arg Thr Val Glu Asn Lys Pro Ala Asn Asn Thr
405 410 415

Pro Ala Gln Gly Asn Val Asp Thr Pro Gly Ser Glu Asp Thr Met Glu
420 425 430

Ser Arg Arg Ser Ser Met Ala Ser Thr Ser Ser Thr Phe Phe Asp Thr
435 440 445

Ser Ser Ile Gly Gly Pro Cys Arg Ile Arg Met Leu Met Leu Lys His
450 455 460

Arg Cys Met Ile Arg Arg Cys Arg Leu Leu Ile Leu Ile Arg Leu Phe
465 470 475 480

Arg Ile Trp Gly Ile Gln Ile Ser Val Val Tyr Ser Thr Ile Gln His
485 490 495

Pro Pro Arg Asp Thr Thr Asp Asn Gly Ala Arg Leu Leu Gly Asn Pro
500 505 510

Ser Ala Gly Ile Gln Ser Thr Tyr Ala Arg Leu Ala Leu Ser Gly Gly
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 35 40 45

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 50 55 60

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 65 70 75 80

Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly
 85 90 95

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 Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile
 115 120 125
 Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp
 130 135 140
 Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser
 145 150 155 160
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 Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala
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 195 200 205
 Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys
 210 215 220
 Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn
 225 230 235 240
 Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln
 245 250 255
 Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala
 260 265 270
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 275 280 285
 Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile
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 305 310 315 320
 Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg
 325 330 335
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 340 345 350
 Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser
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370 375 380

Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu
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Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro
405 410 415

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420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu
435 440 445

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35 40 45

Leu Phe Ser Pro Leu Arg Asn Ser Met Ala Asp Ser Val Asp Ser Arg
50 55 60

Asp Ile Pro Gly Leu Pro Thr Asn Pro Ser Arg Leu Ala Ala Ala Thr
65 70 75 80

Ser Glu Thr Cys Leu Leu Gly Gly Phe Glu Val Leu His Asp Lys Gly
85 90 95

Pro Leu Asp Ile Leu Asn Thr Gln Ile Gly Pro Ser Ala Phe Arg Val
100 105 110

Glu Val Gln Ala Asp Gly Thr His Ala Ala Ile Gly Glu Lys Asn Gly
115 120 125

Leu Glu Val Ser Val Thr Leu Ser Pro Gln Glu Trp Ser Ser Leu Gln
130 135 140

Ser Ile Asp Thr Glu Gly Lys Asn Arg Phe Val Phe Thr Gly Gly Arg
145 150 155 160

Gly Gly Ser Gly His Pro Met Val Thr Val Ala Ser Asp Ile Ala Glu
165 170 175

Ala Arg Thr Lys Ile Leu Ala Lys Leu Asp Pro Asp Asn His Gly Gly
180 185 190

Arg Gln Pro Lys Asp Val Asp Thr Arg Ser Val Gly Val Gly Ser Ala
195 200 205

Ser Gly Ile Asp Asp Gly Val Val Ser Glu Thr His Thr Ser Thr Thr
210 215 220

Asn Ser Ser Val Arg Ser Asp Pro Lys Phe Trp Val Ser Val Gly Ala
Page 11

225 230 240

Ile Ala Ala Gly Leu₂₄₅ Ala Gly Leu Ala Ala₂₅₀ Thr Gly Ile Ala Gln₂₅₅ Ala

Leu Ala Leu Thr₂₆₀ Pro Glu Pro Asp Asp₂₆₅ Pro Thr Thr Thr Asp₂₇₀ Pro Asp

Gln Ala Ala₂₇₅ Asn Ala Ala Glu Ser₂₈₀ Ala Thr Lys Asp Gln₂₈₅ Leu Thr Gln

Glu Ala₂₉₀ Phe Lys Asn Pro Glu₂₉₅ Asn Gln Lys Val Asn₃₀₀ Ile Asp Ala Asn

Gly Asn Ala Ile Pro Ser₃₁₀ Gly Glu Leu Lys Asp₃₁₅ Asp Ile Val Glu Gln₃₂₀

Ile Ala Gln Gln Ala₃₂₅ Lys Glu Ala Gly Glu₃₃₀ Val Ala Arg Gln Gln₃₃₅ Ala

Val Glu Ser Asn₃₄₀ Ala Gln Ala Gln Gln₃₄₅ Arg Tyr Glu Asp Gln₃₅₀ His Ala

Arg Arg Gln₃₅₅ Glu Glu Leu Gln Leu₃₆₀ Ser Ser Gly Ile Gly₃₆₅ Tyr Gly Leu

Ser Ser₃₇₀ Ala Leu Ile Val Ala₃₇₅ Gly Gly Ile Gly Ala₃₈₀ Gly Val Thr Thr

Ala Leu His Arg Arg Asn₃₉₀ Gln Pro Ala Glu Gln₃₉₅ Thr Thr Thr Thr Thr₄₀₀

Thr His Thr Val Val₄₀₅ Gln Gln Gln Thr Gly₄₁₀ Gly Ile Pro Gln His₄₁₅ Lys

Val Ala Leu Met₄₂₀ Pro Gln Glu Arg Arg₄₂₅ Arg Phe Ser Asp Arg₄₃₀ Arg Asp

Ser Gln Gly₄₃₅ Ser Val Ala Ser Thr₄₄₀ His Trp Ser Asp Ser₄₄₅ Ser Ser Glu

Val Val₄₅₀ Asn Pro Tyr Ala Glu₄₅₅ Val Gly Gly Ala Arg₄₆₀ Asn Ser Leu Ser

Ala His Gln Pro Glu Glu₄₇₀ His Ile Tyr Asp Glu₄₇₅ Val Ala Ala Asp Pro₄₈₀

Gly Tyr Ser Val Ile₄₈₅ Gln Asn Phe Ser Gly₄₉₀ Ser Gly Pro Val Thr₄₉₅ Gly

Arg Leu Ile Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu

500

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505

510

Leu Ala Asn Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Ser
515 520 525

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Pro Val Arg Phe Val
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35 40 45

Thr Pro Val Arg Asn Ser Met Ala Asp Ser Gly Asp Asn Arg Ala Ser
50 55 60

Asp Val Pro Gly Leu Pro Val Asn Pro Met Arg Leu Ala Ala Ser Glu
65 70 75 80

Ile Thr Leu Asn Asp Gly Phe Glu Val Leu His Asp His Gly Pro Leu
85 90 95

Asp Thr Leu Asn Arg Gln Ile Gly Ser Ser Val Phe Arg Val Glu Thr
100 105 110

Gln Glu Asp Gly Lys His Ile Ala Val Gly Gln Arg Asn Gly Val Glu
115 120 125

Thr Ser Val Val Leu Ser Asp Gln Glu Tyr Ala Arg Leu Gln Ser Ile
130 135 140

Asp Pro Glu Gly Lys Asp Lys Phe Val Phe Thr Gly Gly Arg Gly Gly
145 150 155 160

Ala Gly His Ala Met Val Thr Val Ala Ser Asp Ile Thr Glu Ala Arg
165 170 175

Gln Arg Ile Leu Glu Leu Leu Glu Pro Lys Gly Thr Gly Glu Ser Lys
180 185 190

Gly Ala Gly Glu Ser Lys Gly Val Gly Glu Leu Arg Glu Ser Asn Ser
 195 200 205
 Gly Ala Glu Asn Thr Thr Glu Thr Gln Thr Ser Thr Ser Thr Ser Ser
 210 215 220
 Leu Arg Ser Asp Pro Lys Leu Trp Leu Ala Leu Gly Thr Val Ala Thr
 225 230 235 240
 Gly Leu Ile Gly Leu Ala Ala Thr Gly Ile Val Gln Ala Leu Ala Leu
 245 250 255
 Thr Pro Glu Pro Asp Ser Pro Thr Thr Thr Asp Pro Asp Ala Ala Ala
 260 265 270
 Ser Ala Thr Glu Thr Ala Thr Arg Asp Gln Leu Thr Lys Glu Ala Phe
 275 280 285
 Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Leu Gly Asn Ala
 290 295 300
 Ile Pro Ser Gly Val Leu Lys Asp Asp Val Val Ala Asn Ile Glu Glu
 305 310 315 320
 Gln Ala Lys Ala Ala Gly Glu Glu Ala Lys Gln Gln Ala Ile Glu Asn
 325 330 335
 Asn Ala Gln Ala Gln Lys Lys Tyr Asp Glu Gln Gln Ala Lys Arg Gln
 340 345 350
 Glu Glu Leu Lys Val Ser Ser Gly Ala Gly Tyr Gly Leu Ser Gly Ala
 355 360 365
 Leu Ile Leu Gly Gly Gly Ile Gly Val Ala Val Thr Ala Ala Leu His
 370 375 380
 Arg Lys Asn Gln Pro Val Glu Gln Thr Thr Thr Thr Thr Thr Thr
 385 390 395 400
 Thr Thr Thr Ser Ala Arg Thr Val Glu Asn Lys Pro Ala Asn Asn Thr
 405 410 415
 Pro Ala Gln Gly Asn Val Asp Thr Pro Gly Ser Glu Asp Thr Met Glu
 420 425 430
 Ser Arg Arg Ser Ser Met Ala Ser Thr Ser Ser Thr Phe Phe Asp Thr
 435 440 445
 Ser Ser Ile Gly Thr Val Gln Asn Pro Tyr Ala Asp Val Lys Thr Ser
 450 455 460

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Leu His Asp Ser Gln Val Pro Thr Ser Asn Ser Asn Thr Ser Val Gln
465 470 475 480

Asn Met Gly Asn Thr Asp Ser Val Val Tyr Ser Thr Ile Gln His Pro
485 490 495

Pro Arg Asp Thr Thr Asp Asn Gly Ala Arg Leu Leu Gly Asn Pro Ser
500 505 510

Ala Gly Ile Gln Ser Thr Tyr Ala Arg Leu Ala Leu Ser Gly Gly Leu
515 520 525

Arg His Asp Met Gly Gly Leu Thr Gly Gly Ser Asn Ser Ala Val Asn
530 535 540

Thr Ser Asn Asn Pro Pro Ala Pro Gly Ser His Arg Phe Val
545 550 555

<210> 12
<211> 485
<212> PRT
<213> Escherichia coli

<400> 12

Asn Ser Val Ala Asp Ala Ala Asp Ser Arg Ala Ser Asp Ile Pro Gly
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Leu Pro Thr Asn Pro Leu Arg Phe Ala Ala Ser Glu Val Ser Leu His
20 25 30

Gly Ala Leu Glu Val Leu His Asp Lys Gly Gly Leu Asp Thr Leu Asn
35 40 45

Ser Ala Ile Gly Ser Ser Leu Phe Arg Val Glu Thr Arg Asp Asp Gly
50 55 60

Ser His Val Ala Ile Gly Gln Lys Asn Gly Leu Glu Thr Thr Val Val
65 70 75 80

Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly
85 90 95

Lys Asn Lys Phe Val Phe Thr Gly Gly Arg Gly Gly Pro Gly His Ala
100 105 110

Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile
115 120 125

Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp
130 135 140

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Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser
 145 150 155 160
 Thr Ser Ser Leu Arg Ala Asp Pro Lys Leu Trp Leu Ser Leu Gly Thr
 165 170 175
 Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala
 180 185 190
 Val Ala Leu Thr Pro Glu Pro Asp Asp Pro Ile Thr Thr Asp Pro Asp
 195 200 205
 Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys
 210 215 220
 Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn
 225 230 235 240
 Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln
 245 250 255
 Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala
 260 265 270
 Ile Glu Ser Asn Ser Gln Ala Gln Gln Lys Tyr Asp Glu Gln His Ala
 275 280 285
 Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile
 290 295 300
 Ser Gly Ala Leu Ile Leu Gly Gly Gly Ile Gly Ala Gly Val Thr Ala
 305 310 315 320
 Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg
 325 330 335
 Thr Val Val Asp Asn Gln Pro Thr Asn Asn Ala Ser Ala Gln Gly Asn
 340 345 350
 Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser
 355 360 365
 Asn Ala Ser Leu Ala Ser Asn Gly Ser Asp Thr Ser Ser Thr Gly Thr
 370 375 380
 Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu
 385 390 395 400
 Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro
 405 410 415

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Asn Tyr Ser Val Ile Gln His Phe Ser Gly Asn Ser Pro Val Thr Gly
420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu
435 440 445

Leu Ala Ser Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Gly
450 455 460

Gly Gly Glu Ser Ala Val Ser Thr Ala Asn Ala Ala Pro Thr Pro Gly
465 470 475 480

Pro Ala Arg Phe Val
485

<210> 13
<211> 22
<212> PRT
<213> Escherichia coli

<400> 13

Met Ser Ser Arg Ser Glu Leu Leu Leu Asp Arg Phe Ala Glu Lys Ile
1 5 10 15

Gly Val Gly Ser Ile Ser
20

<210> 14
<211> 485
<212> PRT
<213> Escherichia coli

<400> 14

Asn Ser Val Ala Asp Ala Ala Asp Ser Arg Ala Ser Asp Ile Pro Gly
1 5 10 15

Leu Pro Thr Asn Pro Leu Arg Phe Ala Ala Ser Glu Val Ser Leu His
20 25 30

Gly Ala Leu Glu Val Leu His Asp Lys Gly Gly Leu Asp Thr Leu Asn
35 40 45

Ser Ala Ile Gly Ser Ser Leu Phe Arg Val Glu Thr Arg Asp Asp Gly
50 55 60

Ser His Val Ala Ile Gly Gln Lys Asn Gly Leu Glu Thr Thr Val Val
65 70 75 80

Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly
85 90 95

Lys Asn Lys Phe Val Phe Thr Gly Gly Arg Gly Gly Pro Gly His Ala
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100

105

110

Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile
 115 120 125

Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp
 130 135 140

Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser
 145 150 155 160

Thr Ser Ser Leu Arg Ala Asp Pro Lys Leu Trp Leu Ser Leu Gly Thr
 165 170 175

Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala
 180 185 190

Val Ala Leu Thr Pro Glu Pro Asp Asp Pro Ile Thr Thr Asp Pro Asp
 195 200 205

Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys
 210 215 220

Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn
 225 230 235 240

Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln
 245 250 255

Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala
 260 265 270

Ile Glu Ser Asn Ser Gln Ala Gln Gln Lys Tyr Asp Glu Gln His Ala
 275 280 285

Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile
 290 295 300

Ser Gly Ala Leu Ile Leu Gly Gly Gly Ile Gly Ala Gly Val Thr Ala
 305 310 315 320

Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg
 325 330 335

Thr Val Val Asp Asn Gln Pro Thr Asn Asn Ala Ser Ala Gln Gly Asn
 340 345 350

Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser
 355 360 365

Asn Ala Ser Leu Ala Ser Asn Gly Ser Asp Thr Ser Ser Thr Gly Thr
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370

375

Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu
385 390 395 400

Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro
405 410 415

Asn Tyr Ser Val Ile Gln His Phe Ser Gly Asn Ser Pro Val Thr Gly
420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu
435 440 445

Leu Ala Ser Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Gly
450 455 460

Gly Gly Glu Ser Ala Val Ser Thr Ala Asn Ala Ala Pro Thr Pro Gly
465 470 475 480

Pro Ala Arg Phe Val
485